Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 2 of 29

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for mediating event records between a generation layer of events and an operation system layer of events in a communications network by means of a mediation layer of events, which includes at least one first self-contained component, ~~of the mediation layer and~~ at least one second self-contained component, ~~of the mediation layer~~ and at least one third self-contained component, which first, second, and third self-contained components operate ~~operates~~ independently of each ~~first component of the mediation layer~~other, and wherein the mediation layer of events further comprises at least one buffer, the method comprising passing the event records through a processing chain of the at least three self-contained components, starting from one of the first self-contained components, then through one of the third self-contained components, and finally through one of the second self-contained components, and for said mediating and passing,

— the method further comprising:

— collecting the event records from an element of the generation layer of events substantially continuously as a stream, by the ~~at least one~~ first self-contained component in the processing chain ~~of the mediation layer~~,

— processing the collected event records substantially continuously in the processing chain, wherein the step of processing includes:

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 3 of 29

— writing the <u>event records</u> output from each <u>preceding self-contained component in</u> <u>the processing chain</u> ~~of the at least one first self-contained component~~ into one of said at least one buffer, ~~and~~

—<u>reading said buffer substantially continuously by the subsequent self-contained</u> <u>component in the processing chain for</u>

— reading the <u>event records as</u> input for <u>said subsequent</u> ~~each of the at least one second~~ self-contained component from ~~one of the~~<u>said</u> ~~at least one~~ buffer,

— <u>after reading any of the event records from the buffer by any subsequent self-</u> <u>contained component in the processing chain, retaining a copy of said read event</u> <u>record in the buffer, and</u>

—<u>removing the retained copy of the event record from the buffer after successfully</u> <u>outputting the event record from the subsequent self-contained component in the</u> <u>processing chain, and</u>

— delivering the processed event records to an element of the operation system layer of events substantially continuously as a stream, by the ~~at least one~~ second self-contained component <u>in the processing chain</u>. ~~of the mediation layer,~~

~~wherein the event records are passed through at least three self-contained components of the mediation layer, starting from one of the first self-contained components, then~~

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 4 of 29

~~through at least one third self-contained component and finally through one of the~~

~~second self-contained components,~~

~~wherein the step of delivering event records comprises~~

~~writing the event records output by a preceding self-contained component of the~~

~~mediation layer into a buffer, and~~

~~reading the buffer substantially continuously by the subsequent self-contained~~

~~component of the mediation layer,~~

~~wherein after reading an event record from a buffer, a copy of the event record is~~

~~retained in the buffer, and removed from the buffer only after successfully outputting the~~

~~event record from the reading self-contained component of the mediation layer.~~

2.   (Currently Amended) A method according to claim 1, wherein at least part of the step of

processing event records is performed by ~~at least~~ the one of the first self-contained

~~component~~ components of the mediation layer.

3.   (Currently Amended) A method according to claim 1, wherein at least part of the step of

processing event records is performed by ~~at least~~ the one of the second self-contained

~~component~~ components of the mediation layer.

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 5 of 29

4. (Currently Amended) A method according to claim 1, wherein at least part of the step of processing event records is performed by ~~at least~~ the one of the third self-contained ~~component~~ components of the mediation layer that operates independently of the other self-contained components of the mediation layer.

5. (Currently Amended) A method according to claim 1, wherein at least two different hosts are used such that at least one of the first, second, and third self-contained components of the mediation layer runs in a first host, and at least ~~one of the other~~ a different one of the first, second, and third self-contained components runs in another host.

6. (Currently Amended) A method according to claim 4, comprising the steps of

– delivering event records from each of the first self-contained components of the mediation layer to the at least one third self-contained component of the mediation layer via at least one buffer, and

– delivering event records from the one of the third self-contained components of the mediation layer to the one of the at least one second self-contained ~~component~~ components of the mediation layer via the at least one buffer.

7-8. (Cancelled)

9. (Currently Amended) A method according to claim 1, wherein the preceding self-contained component of the mediation layer outputs the event records into the buffer one by

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 6 of 29

one, and the subsequent self-contained component of the mediation layer reads the event

records from the buffer one by one.

10. (Currently Amended) A method according to claim 1, wherein the preceding self-

contained component of the mediation layer outputs the event records into the buffer grouped

into small groups of the event records, and the subsequent self-contained component of the

mediation layer reads the event records from the buffer in small groups of the event records.

11. (Currently Amended) A method according to claim 1, wherein at least two separate self-

contained components of the mediation layer write the event records into a single buffer.

12. (Currently Amended) A method according to claim 1, wherein at least two separate self-

contained components of the mediation layer read the event records into a single buffer.

13. (Cancelled)

14. (Previously Presented) A method according to claim 1, wherein the retained event record

is marked with status information indicating the "under processing" status of the event

record.

15. (Previously Presented) A method according to claim1, comprising the steps of monitoring

by a monitoring system the operation of the self-contained components of the mediation

layer and, in case of failure of any of the self-contained components, automatically setting up

a new self-contained component to replace the failed component.

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 7 of 29

16. (Previously Presented) A method according to claim 1, comprising the steps of monitoring by a monitoring system the production capacity of the self-contained components of the mediation layer and, in case of insufficient production capacity of any of the self-contained components, automatically setting up an auxiliary self-contained component parallel to the self-contained component with insufficient production capacity.

17. (Previously Presented) A method according to claim 1, wherein an auxiliary self-contained component is set up to run in a host different to the host in which the self-contained component with insufficient production capacity runs.

18. (Previously Presented) A method according to claim 1, comprising the steps of

–   receiving event records from the step of collecting in a source system format,

–   converting the received event records into a mediation layer format,

–   supplying the collected event records to the step of processing in the mediation layer format,

–   receiving the processed event records from the step of processing in the mediation layer format,

–   converting the processed event records into an operation system layer format, and

–   supplying the processed event records to the step of delivering in the operation system layer format.

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 8 of 29

19. (Previously Presented) A method according to claim 1, wherein the step of processing event records comprises at least one of the following: validating and analysing event records, enrichment of event records, aggregation and correlation of event records, formatting of event records and rating.

20. (Previously Presented) A method according to claim 1, wherein each of the self-contained components operates independently and continuously once started.

21. (Previously Presented) A method according to claim 1, comprising the steps of

– stopping the operation of a self-contained component by the self-contained component itself, and

– performing said step of stopping the operation by the self-contained component only if instructed so by a manager component of the mediation layer.

22. (Previously Presented) A method according to claim 1, comprising the steps of

– providing each of the self-contained components with its own individual settings, and

– each of the self-contained components functioning according to its own individual settings.

23. (Original) A method according to claim 22, wherein said individual settings of each of the self-contained components include

– a node base part of the settings, which is identical to the node base parts of the other self-contained components within the mediation layer, and

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 9 of 29

- a node application part of the settings, which contain custom processing rules and which is different to the node application parts of at least most of the other self-contained components within the mediation layer.

24. (Currently Amended) A system for handling event records in a communications network between a generation layer of events and an operation system layer of events by means of a mediation layer of events, the system comprising:

- independent node components of a mediation layer at least one first self-contained component, at least one second self-contained component, and at least one third self-contained component for processing event records, each of the independent node first, second, and third self-contained components having its own settings, according to which the node and each operates independently of other components of the system, at least three of the independent node first, second, and third self-contained components being configured to handle event records in series through a processing chain such that a preceding independent node component one of the self-contained components writes the event records output into a buffer, and a subsequent independent node component one of the self-contained components reads its input substantially continuously from the buffer,

- at least one node manager component for configuring each of the node first, second, and third self-contained components, starting up each of the node first, second, and third self-contained components, monitoring the functioning of each of the node first, second, and

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 10 of 29

third self-contained components, and stopping each of the ~~node~~ first, second, and third

self-contained components, when required, and

- a system database for managing all configuration information of each ~~component~~ of

the first, second, and third self-contained components, and for storing information on

handled events,

- wherein ~~after reading an event record from a buffer, a copy of the event record is~~

~~retained in the buffer, and removed from the buffer only after successfully outputting the~~

~~event record from the reading independent node component of the mediation layer~~ the

system is adapted to perform the steps of:

- collecting the event records from an element of the generation layer of events

substantially continuously as a stream, by the first self-contained component in the

processing chain,

- processing the collected event records substantially continuously in the processing chain,

wherein the step of processing includes:

- writing the event records output from each preceding self-contained component in

the processing chain into one of said at least one buffer,

- reading said buffer substantially continuously by the subsequent self-contained

component in the processing chain for reading the event records as input for said

subsequent self-contained component from the buffer,

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 11 of 29

– after reading any of the event records from the buffer by any subsequent self-contained component in the processing chain, retaining a copy of said read event record in the buffer, and

– removing the retained copy of the event record from the buffer after successfully outputting the event record from the subsequent self-contained component in the processing chain,

– delivering the processed event records to an element of the operation system layer of events substantially continuously as a stream, by the second self-contained component in the processing chain.

25. (Currently Amended) A system according to claim 24, wherein more than one independent node component have of the first, second, and third self-contained components has been configured to output into a single the buffer, the buffer being a single buffer.

26. (Currently Amended) A system according to claim 24, wherein more than one independent node component have been configured to read its input from a single the buffer, the buffer being a single buffer.

27. (Currently Amended) A system according to claim 24, wherein at least two of the independent node first, second, and third self-contained components have been configured to input, process, and output the event records substantially continuously.

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 12 of 29

28. (Currently Amended) A system according to claim 24, comprising a user interface for controlling, monitoring, and configuring the system.

29. (Currently Amended) A system according to claim 24, wherein the configuration or settings of any ~~component~~ of the first, second, and third self-contained components can be changed by a supervisor at any time, without stopping a handling process.

30. (Currently Amended) A system according to claim 24, wherein the tasks undertaken by the ~~node~~ first, second, and third self-contained components include collecting the events records from a communication network, aggregating the event records, converting the event records, analyzing the event records, correlating the event records, enriching the event records, formatting the event records, rating events and/or delivering the event records.

31. (Currently Amended) A system according to claim 24, which is configured to process the event records in several, simultaneously operating, and at least partly parallel streams.

32. (Currently Amended) A system according to claim 24, comprising at least two audit trail counters for counting auditing values, which are individual quantities of at least two of a group of records consisting of: incoming records, rejected records, reprocessed records, records residing in a specific ~~node component~~ one of the first, second, and third self-contained components, records omitted due to filtering, records expired or deleted, new records created due to splitting or duplication, new records generated that are not related to input records, input records sent to aggregation/correlation process, records that were merged

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 13 of 29

due to aggregation or correlation, resulting records that were completed and came out from the aggregation/correlation process, resulting records that were flushed out from the aggregation/correlation process, records left to a specific node component the specific one of the first, second, and third self-contained components and/or records written out.

33. (Previously Presented) A system according to claim 24, comprising at least one audit trail function for checking that no data is lost within the system.

34. (Currently Amended) A system according to claim 24, comprising at least one data storage component, wherein at least one node component of the first, second, and third self-contained components is configured to write information on all of the events processed by the node component at least one of the first, second, and third self-contained components.

35. (Currently Amended) A system according to claim 24, wherein the node manager component is configured to start up a new node component one of the first, second, and third self-contained components in case node component another one of the self-contained components in the system fails such that the new node component one of the first, second, and third self-contained components replaces the function of the failed component in a processing chain.

36. (Currently Amended) A system according to claim 24, wherein the node manager component is configured to start up a new node component one of the first, second, and third self-contained components parallel to a functioning node component one of the first, second,

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 14 of 29

and third self-contained components in case the processing capacity of the system has to be raised.

37. (Currently Amended) A system according to claim 24, wherein each of the ~~node~~ first, second, and third self-contained components comprise a node base providing basic functionality of the ~~node~~ self-contained component and an application containing processing rules, according to which the ~~node~~ self-contained component processes the event records input to the ~~node~~ self-contained component.

38. (Currently Amended) A system according to claim 37, wherein the node bases of the ~~node~~ self-contained components are identical to each other.

39. (Previously Presented) A system according to claim 37, wherein the node base includes an input module, an output module, an API module, a configuration module and an audit module.

40. (Currently Amended) A system according to claim 24, wherein the ~~node~~ self-contained components have been configured to continue their independent operation until instructed otherwise by the node manager component.

41. (Currently Amended) A system according to claim 24, comprising at least two separate hosts, each of the hosts running at least one of the ~~independent node~~ first, second, and third components.

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 15 of 29

42. (Currently Amended)   A computer program product for a system for handling event records in a communications network between a generation layer of events and an operation system layer of events, which system comprises ~~independent nodes~~ <u>at least a first self-contained component, at least a second self-contained component, and at least a third self-contained component</u> of a mediation layer for processing <u>the</u> event records, the computer program product comprising:

  −   a node base program means capable of providing basic software functionality for the ~~independent nodes~~ <u>first, second, and third self-contained components</u>, said basic software functionality including an external interface<u>,</u> ~~of the node~~ and an internal interface of ~~the node~~ <u>each of the self-contained components</u>,

  −   an application programming interface means for receiving application programs for ~~the independent nodes~~ <u>each of the self-contained components</u>, which application programs are capable of interfacing with the internal interfaces of ~~the node~~ <u>each of the self-contained components</u>,

  −   a node manager program means for setting up at least one node manager that is capable of constructing, configuring, starting up, monitoring and stopping ~~the independent nodes~~ <u>each of the self-contained components</u>, and

  −   a user interface program means for setting up a user interface for configuring the at least one node manager,

  −   wherein the ~~system~~ <u>computer program product</u> is adapted to <u>perform the steps of:</u>

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 16 of 29

- passing the event records through a processing chain of the at least three self-contained components, starting from one of the first self-contained components, then through one of the third self-contained components, and finally through one of the second self-contained components, and for said mediating and passing,

the method comprises performing the steps of:

– collecting event records from an element of the generation layer of events substantially continuously as a stream, by the first self-contained component in the processing chain,

– processing the collected event records substantially continuously in the processing chain, wherein the step of processing includes:

   – writing the event records output from each preceding self-contained component in the processing chain into one of said at least one buffer,

   – reading said buffer substantially continuously by the subsequent self-contained component in the processing chain for reading the event records as input for said subsequent self-contained component from the buffer,

   – after reading any of the event records from the buffer by any subsequent self-contained component in the processing chain, retaining a copy of said read event record in the buffer, and

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 17 of 29

--   removing the retained copy of the event record from the buffer after successfully

outputting the event record from the subsequent self-contained component in the

processing chain,

--   delivering the processed event records to an element of the operation system layer of

events substantially continuously as a stream, by the second self-contained component in

the processing chain.

~~pass the event records through at least three of the independent nodes, starting from one~~

~~of at least one first independent node, then through at least one third independent node,~~

~~and finally through one of at least one second independent node,~~

~~to write the event records output by a preceding independent node into a buffer, and~~

~~to read the buffer substantially continuously by a subsequent independent node of the~~

~~mediation layer,~~

--   ~~wherein after reading an event record from the buffer, a copy of the event record is~~

~~retained in the buffer, and removed from the buffer only after successfully outputting the~~

~~event record from the reading independent node of the mediation layer.~~

43. (Currently Amended) A computer program product according to claim 42, wherein the

node manager program means include program code means to direct a node manager to

construct ~~independent nodes~~ the first, second, and third self-contained components by

combining a copy of node base program means and an application program.

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 18 of 29

44. (Currently Amended) A computer program product according to claim 42, wherein the application program contains logical rules according to which of the ~~node~~ first, second, and third self-contained components processes the event records input to one of the ~~node~~ first, second, and third self-contained components.

45. (Currently Amended) A computer program product according to claim 42, wherein the external interface of the node enables the ~~node~~ first, second, and third self-contained components to communicate with other ~~nodes~~ self-contained components and the node manager.

46. (Currently Amended) A computer program product according to claim 42, wherein the node manager program means include program code means to direct a node manager, in case ~~a node~~ one of the first, second, and third self-contained components in the system fails, to construct, configure and start up a new ~~node~~ self-contained component that replaces the function of the failed ~~node~~ one of the first, second, and third self-contained components.

47. (Currently Amended) A computer program product according to claim 42, wherein the node manager program means include program code means to direct a node manager, in case of insufficient production capacity of any of the ~~nodes~~ first, second, and third self-contained components, to construct, configure and start up a new ~~node~~ self-contained components parallel to the ~~node~~ one of the first, second, and third self-contained components with insufficient production capacity.

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 19 of 29

48. (Previously Presented) A computer program product according to claim 42, wherein the application programming interface means are capable of supporting several programming languages.

49. (Currently Amended) A computer program product according to claim 42, which is capable of configuring the ~~nodes~~ first, second, and third self-contained components to form the processing ~~chains~~ chain of serially connected ~~independent nodes~~ self-contained components, for processing the event records.

50. (Currently Amended) A computer program product according to claim 49, which is capable of configuring the first, second, and third self-contained components ~~nodes~~ in the processing ~~chains~~ chain to transfer the event records from a preceding node in the chain to a subsequent ~~node~~ one of the first, second, and third self-contained components in the chain by means ~~of a~~ of the buffer.

51. (Currently Amended) A computer program product according to claim 42, which is capable of configuring ~~the nodes~~ the first, second, and third self-contained components to function continuously and independently until instructed otherwise by the node manager.

52. (Currently Amended) A computer program product according to claim 42, which supports multi-host execution and is capable starting up the first, second, and third self-contained components ~~nodes~~ in different hosts, and configuring the the first, second, and

Application No. 10/518,553
Amendment dated April 3, 2009
Reply to Office Action of October 14, 2008

Docket No.0365-0616PUS1
Art Unit: 2154
Page 20 of 29

third self-contained components ~~nodes~~ in different hosts to form processing chains for

processing the event records.